

Claims

1. A method of producing cuts (9) in a transparent material, in particular in the cornea (5) of
5 the eye, by generating optical breakthroughs (8) in the material (5) by means of laser radiation
(3) focused into the material (5), the focal point (7) being shifted so as to form the cut (9) by a
surface lattice-type array (F) of sequentially arranged optical breakthroughs (8), wherein the
focal point (7) is shifted along a path and adjacent optical breakthroughs (8) are not generated
immediately following each other along said path, **characterized in that** the surface lattice-type
10 array (F) of the optical breakthroughs (8) is made up of at least two partial lattices (G1, G2, G3),
which are processed after each other, with respect to their associated optical breakthroughs (8).
2. The method as claimed in Claim 1, characterized in that three partial lattices (G1, G2,
G3) are selected such that, in the surface lattice-type array (F) for at least one optical
15 breakthrough (8), in at least one partial lattice (G1, G2, G3) all adjacent optical breakthroughs
(8) belong to other partial lattices (G1, G2, G3).
3. The method as claimed in Claim 2, characterized in that, for all partial lattices (G1, G2,
G3), the optical breakthroughs (8) do not have an immediately adjacent optical breakthrough (8)
20 belonging to the same partial lattice (G1, G2, G3).
4. The method as claimed in any one of the above Claims, characterized in that the cut (9)
is generated by a surface lattice-type array (F) in the shape of a trigonal lattice, and three partial
lattices (G1, G2, G3) are generated from one partial lattice template by three different
25 displacements of the template along an axis of said partial lattice template.
5. A device for producing cuts (9) in a transparent material, in particular in the cornea of the
eye (5), comprising a source of laser radiation (S), which focuses laser radiation (3) into the
material and causes optical breakthroughs (8) therein, wherein a scanning unit (6, 10), which
30 shifts the focal point (7), and a control unit (2) which controls the scanning unit (6, 10), are
provided so as to form the cut (9) by a surface lattice-type array (F) of sequentially arranged
optical breakthroughs (8) in the material (5), said control unit (2) shifting the focal point (7) along
a path and not generating adjacent optical breakthroughs (8) immediately following each other
along said path, **characterized in that** the surface lattice-type array (F) of the optical
35 breakthroughs (8) is made up of at least two partial lattices (G1, G2, G3) and the control unit (2)
effects focus shifting such that the partial lattices (G1, G2, G3) are processed after each other,
with respect to their associated optical breakthroughs (8).



6. The device as claimed in Claim 5, characterized in that the control unit (2) selects the partial lattices (G1, G2, G3) such that, in at least one partial lattice (G1, G2, G3) for at least one optical breakthrough (8), all adjacent optical breakthroughs (8) belong to other partial lattices (G1, G2, G3).

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7. The device as claimed in Claim 6, characterized in that, for all partial lattices (G1, G2, G3), the optical breakthroughs (8) do not have an immediately adjacent optical breakthrough (8) belonging to the same partial lattice (G1, G2, G3).

10 8. The device as claimed in any one of Claims 5, 6 or 7, characterized in that the control unit (2) generates the cut (9) by a surface lattice-type array in the form of a trigonal lattice and generates the three partial lattices (G1, G2, G3) from a partial lattice template by three different displacements of the template along an axis of said partial lattice template.

15 9. Method or device as claimed in any one of the above Claims, characterized in that at least one partial lattice (G1, G2, G3) is not processed completely with optical breakthroughs (8).

